

| REACH DOCUMENTATION |  |  | Standard Reach Length (wetted width ≤ 10 m) = 150 m Distance between transects = 15 m<br>Alternate Reach Length (wetted width >10 m) = 250 m Distance between transects = 25 m |  |       |
|---------------------|--|--|--|--|-------|
| Project Name:       |  |  | Date:  |  | Time: |
| Stream Name:        |  |  | Site Name/ Description:  |  |       |
| Site Code:          |  |  | Crew Members:  |  |       |
| Latitude: °N        |  |  | datum:<br><b>NAD83</b>   |  |       |
| Longitude: °W       |  |  | other:   |  |       |

| AMBIENT WATER QUALITY MEASUREMENTS |  |                     |  | all meters calibrated? |  | Yes <input type="checkbox"/> No <input type="checkbox"/> |  |
|------------------------------------|--|---------------------|--|------------------------|--|--|--|
| Temp (°C)                          |  | pH                  |  | Alkalinity (mg/L)      |  | Turbidity (ntu, <i>optional</i> )                        |  |
| Dissolved O <sub>2</sub> (mg/L)    |  | Specific Cond. (µS) |  | Salinity (mg/L)        |  | Dissolved Silica ( <i>optional</i> )                     |  |

| REACH LENGTH                                 |  |
|--|--|
| (see reach length guidelines at top of form) |  |
| Actual Length (m)                            |  |
| Explanation:                                 |  |

| DISCHARGE MEASUREMENTS                                       |                              |            |                  |    |                              |            |                  | check if discharge measurements not possible <input type="checkbox"/> |                           |               |                |               |
|--|------------------------------|------------|------------------|----|------------------------------|------------|------------------|---|---------------------------|---------------|----------------|---------------|
| 1 <sup>st</sup> measurement = left bank (looking downstream) |                              |            |                  |    |                              |            |                  | (explain in field notes section)                                      |                           |               |                |               |
| VELOCITY AREA METHOD (preferred)                             |                              |            |                  |    | Transect Width:              |            |                  | BOUYANT OBJECT METHOD (use ONLY if velocity area method not possible) |                           |               |                |               |
|  | Distance from Left Bank (cm) | Depth (cm) | Velocity (m/sec) |    | Distance from Left Bank (cm) | Depth (cm) | Velocity (m/sec) |   | Float 1                   | Float 2       | Float 3        |               |
| 1  |                              |            |                  | 11 |                              |            |                  |   | Distance                  |               |                |               |
| 2  |                              |            |                  | 12 |                              |            |                  |   | Float Time                |               |                |               |
| 3  |                              |            |                  | 13 |                              |            |                  |   | Float Reach Cross Section |               |                |               |
| 4  |                              |            |                  | 14 |                              |            |                  |   | width (m) depth           | Upper Section | Middle Section | Lower Section |
| 5  |                              |            |                  | 15 |                              |            |                  |   | Width                     |               |                |               |
| 6  |                              |            |                  | 16 |                              |            |                  |   | Depth 1                   |               |                |               |
| 7  |                              |            |                  | 17 |                              |            |                  |   | Depth 2                   |               |                |               |
| 8  |                              |            |                  | 18 |                              |            |                  |   | Depth 3                   |               |                |               |
| 9  |                              |            |                  | 19 |                              |            |                  |   | Depth 4                   |               |                |               |
| 10   |                              |            |                  | 20 |                              |            |                  |   | Depth 5                   |               |                |               |

| NOTABLE FIELD CONDITIONS (check one box per topic)              |  |  |  |  |  |                   |  |             |  |                    |  |
|---|--|--|--|--|--|-------------------|--|-------------|--|--------------------|--|
| Evidence of recent rainfall (enough to increase surface runoff) |  |  |  |  |  | NO                |  | minimal     |  | >10% flow increase |  |
| Evidence of fires in reach or immediately upstream (<500 m)     |  |  |  |  |  | NO                |  | < 1 year    |  | < 5 years          |  |
| Dominant landuse/ landcover in area surrounding reach           |  |  |  |  |  | Agriculture       |  | Forest      |  | Rangeland          |  |
|   |  |  |  |  |  | Urban/ Industrial |  | Suburb/Town |  | Other              |  |

| ADDITIONAL COBBLE EMBEDDEDNESS MEASURES<br>(carry over from transect forms if needed; measure in mm) | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 |  |
|--|----|----|----|----|----|----|----|----|----|----|----|----|----|--|
|  |    |    |    |    |    |    |    |    |    |    |    |    |    |  |
|  | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |    |  |

| Site Code: _____  |   | Date: ____ / ____ / ____                       |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
|---|---|--|--------------------------|----------------------|--------------------------------------|---|--|--------------------------|----------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| <b>SLOPE and BEARING FORM (transect based - for Full PHAB only)</b> |   |  |                          |                      |                                      |   |  |                          |                      | <b>AUTOLEVEL</b><br><b>CLINOMETER</b><br><b>HANDLEVEL</b> |   |   |   |   |   |  |   |   |   |   |   |
| Starting<br>Transect  | MAIN SEGMENT<br>(record percent of inter-transect distance in each segment<br>if supplemental segments are used)  |  |                          |                      |                                      | SUPPLEMENTAL SEGMENT<br>(record percent of inter-transect distance in each segment<br>if supplemental segments are used)                              |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
|   | Stadia rod<br>measurements  | Slope (%) or<br>Elevation<br>Difference        | Segment<br>Length<br>(m) | Bearing<br>(0°-359°) | Percent<br>of Total<br>Length<br>(%) | Stadia rod<br>measurements  | Slope or<br>Elevation<br>Difference            | Segment<br>Length<br>(m) | Bearing<br>(0°-359°) | Percent<br>of Total<br>Length<br>(%)                      |   |   |   |   |   |  |   |   |   |   |   |
|   |   | cm <input type="text"/> % <input type="text"/> |                          |                      |                                      |   | cm <input type="text"/> % <input type="text"/> |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| K   |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| J   |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| I   |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| H   |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| G   |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| F   |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| E   |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| D   |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| C   |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| B   |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| A   |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| additional<br>calculation<br>area                                   |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| ADDITIONAL HABITAT CHARACTERIZATION                                 |   |  |                          |                      |                                      |   |  |                          |                      |   |   |   |   |   |   |  |   |   |   |   |   |
| Parameter   | Optimal   |  |                          |                      |                                      | Suboptimal  |  |                          |                      |   | Marginal  |   |   |   |   | Poor   |   |   |   |   |   |
| <b>Epifaunal Substrate/<br/>Cover</b>                               | Greater than 70% of substrate favorable for epifaunal colonization and fish cover (50% for low-gradient streams); mix of submerged logs, undercut banks, cobble or other stable habitat |  |                          |                      |                                      | 40-70% mix of stable habitat (30-50% for low-gradient streams); well-suited for full colonization potential   |  |                          |                      |   | 20-40% mix of stable habitat (10-30% in low-gradient streams); substrate frequently disturbed or removed                            |   |   |   |   | Less than 20% stable habitat (10% in low-gradient streams); lack of habitat is obvious; substrate unstable or lacking                            |   |   |   |   |   |
| <b>Score:</b>   | 20  | 19   | 18                       | 17                   | 16                                   | 15  | 14   | 13                       | 12                   | 11  | 10  | 9 | 8 | 7 | 6 | 5  | 4 | 3 | 2 | 1 | 0 |
| <b>Sediment Deposition</b>  | Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition (<20% in low-gradient streams)   |  |                          |                      |                                      | Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected (20-50% in low-gradient streams)         |  |                          |                      |   | Moderate deposition of new gravel, sand, or fine sediment on bars; 30-50% of the bottom affected (50 - 80% in low-gradient streams) |   |   |   |   | Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently (>80% in low-gradient streams)       |   |   |   |   |   |
| <b>Score:</b>   | 20  | 19   | 18                       | 17                   | 16                                   | 15  | 14   | 13                       | 12                   | 11  | 10  | 9 | 8 | 7 | 6 | 5  | 4 | 3 | 2 | 1 | 0 |
| <b>Channel Alteration</b>   | Channelization or dredging absent or minimal; stream with normal pattern  |  |                          |                      |                                      | Some channelization present, (e.g., bridge abutments); evidence of past channelization (> 20yrs) may be present but recent channelization not present |  |                          |                      |   | Channelization may be extensive: embankments or shoring structures present on both banks; 40 to 80% of stream reach disrupted       |   |   |   |   | Banks shored with gabion or cement; Over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely |   |   |   |   |   |
| <b>Score:</b>   | 20  | 19   | 18                       | 17                   | 16                                   | 15  | 14   | 13                       | 12                   | 11  | 10  | 9 | 8 | 7 | 6 | 5  | 4 | 3 | 2 | 1 | 0 |

|                   |                     |                          |
|-------------------|---------------------|--------------------------|
| Site Code:        | Site Name:          | Date: ____ / ____ / ____ |
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (cm):    |
| Transect A        |                     |                          |

| TRANSECT SUBSTRATES |                   |            |                |      | Cobble Embeddedness (%) |
|---------------------|-------------------|------------|----------------|------|-------------------------|
| Position            | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Left Bank           |                   |            |                | P A  |                         |
| Left Center         |                   |            |                | P A  |                         |
| Center              |                   |            |                | P A  |                         |
| Right Center        |                   |            |                | P A  |                         |
| Right Bank          |                   |            |                | P A  |                         |

| BANK STABILITY (score zone 5m up and 5m downstream of transect between bankfull - wetted width) |        |            |        |
|---|--------|------------|--------|
| <b>Left Bank</b>  | eroded | vulnerable | stable |
| <b>Right Bank</b>   | eroded | vulnerable | stable |

| HUMAN INFLUENCE<br>(circle only the closest<br>to wetted channel) | 0 = Not Present    B = On Bank    C = Between Bank and 10 m from Channel<br>P = >10 m + <50 m from Channel    Channel (record Yes or No) |   |   |   |         |   |            |   |   |   |  |  |
|---|--|---|---|---|---------|---|------------|---|---|---|--|--|
|   | Left Bank  |   |   |   | Channel |   | Right Bank |   |   |   |  |  |
| Walls/ Rip-rap/ Dams  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Buildings   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Pavement/ Cleared Lot   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Road/ Railroad  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Pipes (Inlet/ Outlet)   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Landfill/ Trash   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Park/ Lawn  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Row Crops   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Pasture/ Range  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Logging Operations  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Mining Activity   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Vegetation Management   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Bridges/ Abutments  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Orchards/ Vineyards   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |

|  |  |   |   |   |   |            |   |   |   |   |
|--|--|---|---|---|---|------------|---|---|---|---|
| <div>RIPARIAN<br/>VEGETATION<br/>(facing downstream)</div> | <div>0 = Absent (0%)      3 = Heavy (40-75%)<br/>1 = Sparse (&lt;10%)    4 = Very Heavy&gt;75%)<br/>2 = Moderate (10-40%)      <b>circle one</b></div> |   |   |   |   |            |   |   |   |   |
| Vegetation Class   | Left Bank  |   |   |   |   | Right Bank |   |   |   |   |
| Upper Canopy (>5 m high)                                   |  |   |   |   |   |            |   |   |   |   |
| Trees and saplings<br>>5 m high                            | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Lower Canopy (0.5 m-5 m high)                              |  |   |   |   |   |            |   |   |   |   |
| All vegetation<br>0.5 m to 5 m                             | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Ground Cover (<0.5 m high)                                 |  |   |   |   |   |            |   |   |   |   |
| Woody shrubs and saplings<br><0.5 m                        | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Herbs/ grasses   | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Barren, bare soil/ duff                                    | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |

| INSTREAM<br>HABITAT<br>COMPLEXITY | 0 = Absent (0%)<br>1 = Sparse (<10%)<br>2 = Moderate (10-40%)<br>3 = Heavy (40-75%)<br>4 = Very Heavy (>75%) |   |   |   |   |   |
|-----------------------------------|--|---|---|---|---|---|
|                                   | Filamentous Algae  | 0 | 1 | 2 | 3 | 4 |
|                                   | Aquatic Macrophytes/<br>Emergent Vegetation  | 0 | 1 | 2 | 3 | 4 |
|                                   | Boulders   | 0 | 1 | 2 | 3 | 4 |
|                                   | Woody Debris >0.3 m  | 0 | 1 | 2 | 3 | 4 |
| Woody Debris <0.3 m               | 0  | 1 | 2 | 3 | 4 |   |
| Undercut Banks                    | 0  | 1 | 2 | 3 | 4 |   |
| Overhang. Vegetation              | 0  | 1 | 2 | 3 | 4 |   |
| Live Tree Roots                   | 0  | 1 | 2 | 3 | 4 |   |
| Artificial Structures             | 0  | 1 | 2 | 3 | 4 |   |

| DENSIMETER READINGS (0-17)<br>count covered dots |  |
|--|--|
| Center Left                                      |  |
| Center Upstream                                  |  |
| Center Downstream                                |  |
| Center Right                                     |  |
| Left Bank (optional)                             |  |
| Right Bank (optional)                            |  |

|                    |                   |
|--------------------|-------------------|
| Inter-transect: AB | Wetted Width (m): |
|--------------------|-------------------|

| FLOW HABITATS<br>(% between transects, total=100%) |   | INTER-TRANSECT SUBSTRATES<br>(measure in mm or use size classes)   |                   |            |                |      | Cobble Embeddedness (%) | TAKE PHOTOGRAPHS<br>(check box if taken and record photo code)  |
|--|---|--|-------------------|------------|----------------|------|-------------------------|---|
| Channel Type                                       | % | Position   | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |   |
| Cascade/ Falls                                     |   | Left Bank  |                   |            |                | P A  |                         | <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Downstream (required) <input type="checkbox"/></div> <div style="border: 1px solid black; padding: 5px;">Upstream (optional) <input type="checkbox"/></div> |
| Rapid  |   | Left Center  |                   |            |                | P A  |                         |   |
| Riffle   |   | Center   |                   |            |                | P A  |                         |   |
| Run  |   | Right Center   |                   |            |                | P A  |                         |   |
| Glide  |   | Right Bank   |                   |            |                | P A  |                         |   |
| Pool   |   | <b>Note:</b> Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of size class categories listed on the supplemental page (direct measurements are preferred) |                   |            |                |      |                         |   |
| Dry  |   |  |                   |            |                |      |                         |   |

|                   |                     |                      |
|-------------------|---------------------|----------------------|
| Site Code:        | Site Name:          | Date: ____/____/____ |
| Wetted Width (m): | Bankfull Width (m): | Transect B           |

| TRANSECT SUBSTRATES |                   |            |                |      | Cobble Embeddedness (%) |
|---------------------|-------------------|------------|----------------|------|-------------------------|
| Position            | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Left Bank           |                   |            |                | P A  |                         |
| Left Center         |                   |            |                | P A  |                         |
| Center              |                   |            |                | P A  |                         |
| Right Center        |                   |            |                | P A  |                         |
| Right Bank          |                   |            |                | P A  |                         |

| BANK STABILITY (score zone 5m up and 5m downstream of transect between bankfull - wetted width) |        |            |        |
|---|--------|------------|--------|
| Left Bank   | eroded | vulnerable | stable |
| Right Bank  | eroded | vulnerable | stable |

| HUMAN INFLUENCE<br>(circle only the closest to wetted channel) | 0 = Not Present    B = On Bank    C = Between Bank and 10 m from Channel<br>P = >10 m + <50 m from Channel    Channel (record Yes or No) |   |   |   |         |   |            |   |   |   |  |  |
|--|--|---|---|---|---------|---|------------|---|---|---|--|--|
|  | Left Bank  |   |   |   | Channel |   | Right Bank |   |   |   |  |  |
| Walls/ Rip-rap/ Dams   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Buildings  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Pavement/ Cleared Lot  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Road/ Railroad   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Pipes (Inlet/ Outlet)  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Landfill/ Trash  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Park/ Lawn   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Row Crops  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Pasture/ Range   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Logging Operations   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Mining Activity  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Vegetation Management  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Bridges/ Abutments   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Orchards/ Vineyards  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |

| RIPARIAN VEGETATION<br>(facing downstream) | 0 = Absent (0%)    3 = Heavy (40-75%)<br>1 = Sparse (<10%)    4 = Very Heavy (>75%)<br>2 = Moderate (10-40%)    circle one |   |   |   |   |            |   |   |   |   |
|--|--|---|---|---|---|------------|---|---|---|---|
|  | Left Bank  |   |   |   |   | Right Bank |   |   |   |   |
| Upper Canopy (>5 m high)                   |  |   |   |   |   |            |   |   |   |   |
| Trees and saplings >5 m high               | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Lower Canopy (0.5 m-5 m high)              |  |   |   |   |   |            |   |   |   |   |
| All vegetation 0.5 m to 5 m                | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Ground Cover (<0.5 m high)                 |  |   |   |   |   |            |   |   |   |   |
| Woody shrubs and saplings <0.5 m           | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Herbs/ grasses                             | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Barren, bare soil/ duff                    | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |

| INSTREAM<br>HABITAT<br>COMPLEXITY           | 0 = Absent (0%)<br>1 = Sparse (<10%)<br>2 = Moderate (10-40%)<br>3 = Heavy (40-75%)<br>4 = Very Heavy (>75%) |   |   |   |   |
|---|--|---|---|---|---|
|   | 0  | 1 | 2 | 3 | 4 |
| Filamentous Algae                           | 0  | 1 | 2 | 3 | 4 |
| Aquatic Macrophytes/<br>Emergent Vegetation | 0  | 1 | 2 | 3 | 4 |
| Boulders                                    | 0  | 1 | 2 | 3 | 4 |
| Woody Debris >0.3 m                         | 0  | 1 | 2 | 3 | 4 |
| Woody Debris <0.3 m                         | 0  | 1 | 2 | 3 | 4 |
| Undercut Banks                              | 0  | 1 | 2 | 3 | 4 |
| Overhang. Vegetation                        | 0  | 1 | 2 | 3 | 4 |
| Live Tree Roots                             | 0  | 1 | 2 | 3 | 4 |
| Artificial Structures                       | 0  | 1 | 2 | 3 | 4 |

| DENSIMETER READINGS (0-17)<br>count covered dots |  |
|--|--|
| Center Left                                      |  |
| Center Upstream                                  |  |
| Center Downstream                                |  |
| Center Right                                     |  |
| Left Bank (optional)                             |  |
| Right Bank (optional)                            |  |

|                    |                   |
|--------------------|-------------------|
| Inter-transect: BC | Wetted Width (m): |
|--------------------|-------------------|

| FLOW HABITATS<br>(% between transects, total=100%) |   | INTER-TRANSECT SUBSTRATES<br>(measure in mm or use size classes)  |                   |            |                |      | Cobble Embeddedness (%) |
|--|---|---|-------------------|------------|----------------|------|-------------------------|
| Channel Type                                       | % | Position  | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Cascade/ Falls                                     |   | Left Bank   |                   |            |                | P A  |                         |
| Rapid  |   | Left Center   |                   |            |                | P A  |                         |
| Riffle   |   | Center  |                   |            |                | P A  |                         |
| Run  |   | Right Center  |                   |            |                | P A  |                         |
| Glide  |   | Right Bank  |                   |            |                | P A  |                         |
| Pool   |   | <b>Note:</b> Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of size class categories listed on the supplemental page ( <b>direct measurements are preferred</b> ) |                   |            |                |      |                         |
| Dry  |   |   |                   |            |                |      |                         |

|                   |                     |                          |
|-------------------|---------------------|--------------------------|
| Site Code:        | Site Name:          | Date: ____ / ____ / ____ |
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (cm):    |

**Transect C**

| TRANSECT SUBSTRATES |                   |            |                |      | Cobble Embeddedness (%) |
|---------------------|-------------------|------------|----------------|------|-------------------------|
| Position            | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Left Bank           |                   |            |                | P A  |                         |
| Left Center         |                   |            |                | P A  |                         |
| Center              |                   |            |                | P A  |                         |
| Right Center        |                   |            |                | P A  |                         |
| Right Bank          |                   |            |                | P A  |                         |

| BANK STABILITY (score zone 5m up and 5m downstream of transect between bankfull - wetted width) |        |            |        |
|---|--------|------------|--------|
| Left Bank   | eroded | vulnerable | stable |
| Right Bank  | eroded | vulnerable | stable |

| HUMAN INFLUENCE<br>(circle only the closest to wetted channel) | 0 = Not Present    B = On Bank    C = Between Bank and 10 m from Channel<br>P = >10 m + <50 m from Channel    Channel (record Yes or No) |   |   |   |         |   |            |   |   |   |
|--|--|---|---|---|---------|---|------------|---|---|---|
|  | Left Bank  |   |   |   | Channel |   | Right Bank |   |   |   |
| Walls/ Rip-rap/ Dams   | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Buildings  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Pavement/ Cleared Lot  | P  | C | B | 0 |         |   | 0          | B | C | P |
| Road/ Railroad   | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Pipes (Inlet/ Outlet)  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Landfill/ Trash  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Park/ Lawn   | P  | C | B | 0 |         |   | 0          | B | C | P |
| Row Crops  | P  | C | B | 0 |         |   | 0          | B | C | P |
| Pasture/ Range   | P  | C | B | 0 |         |   | 0          | B | C | P |
| Logging Operations   | P  | C | B | 0 |         |   | 0          | B | C | P |
| Mining Activity  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Vegetation Management  | P  | C | B | 0 |         |   | 0          | B | C | P |
| Bridges/ Abutments   | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Orchards/ Vineyards  | P  | C | B | 0 |         |   | 0          | B | C | P |

|  |  |   |   |   |   |                       |   |   |   |   |
|--|--|---|---|---|---|-----------------------|---|---|---|---|
| <div>RIPARIAN<br/>VEGETATION<br/>(facing downstream)</div> | <div>0 = Absent (0%)      3 = Heavy (40-75%)<br/>1 = Sparse (&lt;10%)      4 = Very Heavy&gt;75%)<br/>2 = Moderate (10-40%)      <b>circle one</b></div> |   |   |   |   |                       |   |   |   |   |
| <div>Vegetation Class</div>                                | <div>Left Bank</div>   |   |   |   |   | <div>Right Bank</div> |   |   |   |   |
| <div>Upper Canopy (&gt;5 m high)</div>                     |  |   |   |   |   |                       |   |   |   |   |
| <div>Trees and saplings<br/>&gt;5 m high</div>             | 0  | 1 | 2 | 3 | 4 | 0                     | 1 | 2 | 3 | 4 |
| <div>Lower Canopy (0.5 m-5 m high)</div>                   |  |   |   |   |   |                       |   |   |   |   |
| <div>All vegetation<br/>0.5 m to 5 m</div>                 | 0  | 1 | 2 | 3 | 4 | 0                     | 1 | 2 | 3 | 4 |
| <div>Ground Cover (&lt;0.5 m high)</div>                   |  |   |   |   |   |                       |   |   |   |   |
| <div>Woody shrubs and saplings<br/>&lt;0.5 m</div>         | 0  | 1 | 2 | 3 | 4 | 0                     | 1 | 2 | 3 | 4 |
| <div>Herbs/ grasses</div>                                  | 0  | 1 | 2 | 3 | 4 | 0                     | 1 | 2 | 3 | 4 |
| <div>Barren, bare soil/ duff</div>                         | 0  | 1 | 2 | 3 | 4 | 0                     | 1 | 2 | 3 | 4 |

| INSTREAM HABITAT COMPLEXITY              | 0 = Absent (0%)<br>1 = Sparse (<10%)<br>2 = Moderate (10-40%)<br>3 = Heavy (40-75%)<br>4 = Very Heavy (>75%) |   |   |   |   |
|--|--|---|---|---|---|
| Filamentous Algae                        | 0  | 1 | 2 | 3 | 4 |
| Aquatic Macrophytes/ Emergent Vegetation | 0  | 1 | 2 | 3 | 4 |
| Boulders                                 | 0  | 1 | 2 | 3 | 4 |
| Woody Debris >0.3 m                      | 0  | 1 | 2 | 3 | 4 |
| Woody Debris <0.3 m                      | 0  | 1 | 2 | 3 | 4 |
| Undercut Banks                           | 0  | 1 | 2 | 3 | 4 |
| Overhang. Vegetation                     | 0  | 1 | 2 | 3 | 4 |
| Live Tree Roots                          | 0  | 1 | 2 | 3 | 4 |
| Artificial Structures                    | 0  | 1 | 2 | 3 | 4 |

| DENSIOMETER READINGS (0-17)<br>count covered dots |  |
|---|--|
| Center Left                                       |  |
| Center Upstream                                   |  |
| Center Downstream                                 |  |
| Center Right                                      |  |
| Left Bank (optional)                              |  |
| Right Bank (optional)                             |  |

**Inter-transect: CD**

Wetted Width (m):

| FLOW HABITATS<br>(% between transects, total=100%) |   | INTER-TRANSECT SUBSTRATES<br>(measure in mm or use size classes)  |                   |            |                |      | Cobble Embeddedness (%) |
|--|---|---|-------------------|------------|----------------|------|-------------------------|
| Channel Type                                       | % | Position  | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Cascade/ Falls                                     |   | Left Bank   |                   |            |                | P A  |                         |
| Rapid  |   | Left Center   |                   |            |                | P A  |                         |
| Riffle   |   | Center  |                   |            |                | P A  |                         |
| Run  |   | Right Center  |                   |            |                | P A  |                         |
| Glide  |   | Right Bank  |                   |            |                | P A  |                         |
| Pool   |   | <b>Note:</b> Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of size class categories listed on the supplemental page ( <b>direct measurements are preferred</b> ) |                   |            |                |      |                         |
| Dry  |   |   |                   |            |                |      |                         |

|                   |                     |                          |
|-------------------|---------------------|--------------------------|
| Site Code:        | Site Name:          | Date: ____ / ____ / ____ |
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (cm):    |

**Transect D**

| TRANSECT SUBSTRATES |                   |            |                |      | Cobble Embeddedness (%) |
|---------------------|-------------------|------------|----------------|------|-------------------------|
| Position            | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Left Bank           |                   |            |                | P A  |                         |
| Left Center         |                   |            |                | P A  |                         |
| Center              |                   |            |                | P A  |                         |
| Right Center        |                   |            |                | P A  |                         |
| Right Bank          |                   |            |                | P A  |                         |

| BANK STABILITY (score zone 5m up and 5m downstream of transect between bankfull - wetted width) |        |            |        |
|---|--------|------------|--------|
| Left Bank   | eroded | vulnerable | stable |
| Right Bank  | eroded | vulnerable | stable |

| HUMAN INFLUENCE<br>(circle only the closest to wetted channel) | 0 = Not Present    B = On Bank    C = Between Bank and 10 m from Channel<br>P = >10 m + <50 m from Channel    Channel (record Yes or No) |   |   |   |         |   |            |   |   |   |  |  |
|--|--|---|---|---|---------|---|------------|---|---|---|--|--|
|  | Left Bank  |   |   |   | Channel |   | Right Bank |   |   |   |  |  |
| Walls/ Rip-rap/ Dams   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Buildings  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Pavement/ Cleared Lot  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Road/ Railroad   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Pipes (Inlet/ Outlet)  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Landfill/ Trash  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Park/ Lawn   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Row Crops  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Pasture/ Range   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Logging Operations   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Mining Activity  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Vegetation Management  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Bridges/ Abutments   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Orchards/ Vineyards  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |

| RIPARIAN VEGETATION<br>(facing downstream) | 0 = Absent (0%)    3 = Heavy (40-75%)<br>1 = Sparse (<10%)    4 = Very Heavy (>75%)<br>2 = Moderate (10-40%)    circle one |   |   |   |   |            |   |   |   |   |
|--|--|---|---|---|---|------------|---|---|---|---|
|  | Left Bank  |   |   |   |   | Right Bank |   |   |   |   |
| <b>Upper Canopy (&gt;5 m high)</b>         |  |   |   |   |   |            |   |   |   |   |
| Trees and saplings >5 m high               | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| <b>Lower Canopy (0.5 m-5 m high)</b>       |  |   |   |   |   |            |   |   |   |   |
| All vegetation 0.5 m to 5 m                | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| <b>Ground Cover (&lt;0.5 m high)</b>       |  |   |   |   |   |            |   |   |   |   |
| Woody shrubs and saplings <0.5 m           | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Herbs/ grasses                             | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Barren, bare soil/ duff                    | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |

| INSTREAM<br>HABITAT<br>COMPLEXITY           | 0 = Absent (0%)<br>1 = Sparse (<10%)<br>2 = Moderate (10-40%)<br>3 = Heavy (40-75%)<br>4 = Very Heavy (>75%) |   |   |   |   |
|---|--|---|---|---|---|
| Filamentous Algae                           | 0  | 1 | 2 | 3 | 4 |
| Aquatic Macrophytes/<br>Emergent Vegetation | 0  | 1 | 2 | 3 | 4 |
| Boulders                                    | 0  | 1 | 2 | 3 | 4 |
| Woody Debris >0.3 m                         | 0  | 1 | 2 | 3 | 4 |
| Woody Debris <0.3 m                         | 0  | 1 | 2 | 3 | 4 |
| Undercut Banks                              | 0  | 1 | 2 | 3 | 4 |
| Overhang. Vegetation                        | 0  | 1 | 2 | 3 | 4 |
| Live Tree Roots                             | 0  | 1 | 2 | 3 | 4 |
| Artificial Structures                       | 0  | 1 | 2 | 3 | 4 |

| DENSIOMETER READINGS (0-17)<br>count covered dots |  |
|---|--|
| Center Left                                       |  |
| Center Upstream                                   |  |
| Center Downstream                                 |  |
| Center Right                                      |  |
| Left Bank (optional)                              |  |
| Right Bank (optional)                             |  |

**Inter-transect: DE**

Wetted Width (m):

| FLOW HABITATS<br>(% between transects, total=100%) |   | INTER-TRANSECT SUBSTRATES<br>(measure in mm or use size classes)  |                   |            |                |      | Cobble Embeddedness (%) |
|--|---|---|-------------------|------------|----------------|------|-------------------------|
| Channel Type                                       | % | Position  | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Cascade/ Falls                                     |   | Left Bank   |                   |            |                | P A  |                         |
| Rapid  |   | Left Center   |                   |            |                | P A  |                         |
| Riffle   |   | Center  |                   |            |                | P A  |                         |
| Run  |   | Right Center  |                   |            |                | P A  |                         |
| Glide  |   | Right Bank  |                   |            |                | P A  |                         |
| Pool   |   | <b>Note:</b> Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of size class categories listed on the supplemental page ( <b>direct measurements are preferred</b> ) |                   |            |                |      |                         |
| Dry  |   |   |                   |            |                |      |                         |

|                   |                     |                          |
|-------------------|---------------------|--------------------------|
| Site Code:        | Site Name:          | Date: ____ / ____ / ____ |
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (cm):    |

**Transect E**

| TRANSECT SUBSTRATES |                   |            |                |      | Cobble Embeddedness (%) |
|---------------------|-------------------|------------|----------------|------|-------------------------|
| Position            | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Left Bank           |                   |            |                | P A  |                         |
| Left Center         |                   |            |                | P A  |                         |
| Center              |                   |            |                | P A  |                         |
| Right Center        |                   |            |                | P A  |                         |
| Right Bank          |                   |            |                | P A  |                         |

| BANK STABILITY (score zone 5m up and 5m downstream of transect between bankfull - wetted width) |        |            |        |
|---|--------|------------|--------|
| Left Bank   | eroded | vulnerable | stable |
| Right Bank  | eroded | vulnerable | stable |

| HUMAN INFLUENCE<br>(circle only the closest to wetted channel) | 0 = Not Present    B = On Bank    C = Between Bank and 10 m from Channel<br>P = >10 m + <50 m from Channel    Channel (record Yes or No) |   |   |   |         |   |            |   |   |   |
|--|--|---|---|---|---------|---|------------|---|---|---|
|  | Left Bank  |   |   |   | Channel |   | Right Bank |   |   |   |
| Walls/ Rip-rap/ Dams   | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Buildings  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Pavement/ Cleared Lot  | P  | C | B | 0 |         |   | 0          | B | C | P |
| Road/ Railroad   | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Pipes (Inlet/ Outlet)  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Landfill/ Trash  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Park/ Lawn   | P  | C | B | 0 |         |   | 0          | B | C | P |
| Row Crops  | P  | C | B | 0 |         |   | 0          | B | C | P |
| Pasture/ Range   | P  | C | B | 0 |         |   | 0          | B | C | P |
| Logging Operations   | P  | C | B | 0 |         |   | 0          | B | C | P |
| Mining Activity  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Vegetation Management  | P  | C | B | 0 |         |   | 0          | B | C | P |
| Bridges/ Abutments   | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Orchards/ Vineyards  | P  | C | B | 0 |         |   | 0          | B | C | P |

|   |  |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
|---|--|--|--|--|-------------------|-------------------|--|--|--|-------------------|-------------------|--|--|--|--|
| RIPARIAN<br>VEGETATION<br>(facing downstream) | 0 = Absent (0%)      3 = Heavy (40-75%)<br>1 = Sparse (<10%)      4 = Very Heavy>75%)<br>2 = Moderate (10-40%) <b>circle one</b> |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
|   | Vegetation Class   |  |  |  |                   | Left Bank         |  |  |  |                   | Right Bank        |  |  |  |  |
|   | Upper Canopy (>5 m high)   |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
|   | Trees and saplings<br>>5 m high  |  |  |  |                   | 0   1   2   3   4 |  |  |  |                   | 0   1   2   3   4 |  |  |  |  |
| Lower Canopy (0.5 m-5 m high)                 |  |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
| All vegetation<br>0.5 m to 5 m                |  |  |  |  | 0   1   2   3   4 |                   |  |  |  | 0   1   2   3   4 |                   |  |  |  |  |
| Ground Cover (<0.5 m high)                    |  |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
| Woody shrubs and saplings<br><0.5 m           |  |  |  |  | 0   1   2   3   4 |                   |  |  |  | 0   1   2   3   4 |                   |  |  |  |  |
| Herbs/ grasses                                |  |  |  |  | 0   1   2   3   4 |                   |  |  |  | 0   1   2   3   4 |                   |  |  |  |  |
| Barren, bare soil/ duff                       |  |  |  |  | 0   1   2   3   4 |                   |  |  |  | 0   1   2   3   4 |                   |  |  |  |  |

| INSTREAM HABITAT COMPLEXITY                 | 0 = Absent (0%)<br>1 = Sparse (<10%)<br>2 = Moderate (10-40%)<br>3 = Heavy (40-75%)<br>4 = Very Heavy (>75%) |   |   |   |   |
|---|--|---|---|---|---|
| Filamentous Algae                           | 0  | 1 | 2 | 3 | 4 |
| Aquatic Macrophytes/<br>Emergent Vegetation | 0  | 1 | 2 | 3 | 4 |
| Boulders                                    | 0  | 1 | 2 | 3 | 4 |
| Woody Debris >0.3 m                         | 0  | 1 | 2 | 3 | 4 |
| Woody Debris <0.3 m                         | 0  | 1 | 2 | 3 | 4 |
| Undercut Banks                              | 0  | 1 | 2 | 3 | 4 |
| Overhang. Vegetation                        | 0  | 1 | 2 | 3 | 4 |
| Live Tree Roots                             | 0  | 1 | 2 | 3 | 4 |
| Artificial Structures                       | 0  | 1 | 2 | 3 | 4 |

| DENSIOMETER READINGS (0-17)<br>count covered dots |  |
|---|--|
| Center Left                                       |  |
| Center Upstream                                   |  |
| Center Downstream                                 |  |
| Center Right                                      |  |
| Left Bank (optional)                              |  |
| Right Bank (optional)                             |  |

**Inter-transect: EF**

Wetted Width (m):

| FLOW HABITATS<br>(% between transects, total=100%) |   | INTER-TRANSECT SUBSTRATES<br>(measure in mm or use size classes)  |                   |            |                |      | Cobble Embeddedness (%) |
|--|---|---|-------------------|------------|----------------|------|-------------------------|
| Channel Type                                       | % | Position  | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Cascade/ Falls                                     |   | Left Bank   |                   |            |                | P A  |                         |
| Rapid  |   | Left Center   |                   |            |                | P A  |                         |
| Riffle   |   | Center  |                   |            |                | P A  |                         |
| Run  |   | Right Center  |                   |            |                | P A  |                         |
| Glide  |   | Right Bank  |                   |            |                | P A  |                         |
| Pool   |   | <b>Note:</b> Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of size class categories listed on the supplemental page ( <b>direct measurements are preferred</b> ) |                   |            |                |      |                         |
| Dry  |   |   |                   |            |                |      |                         |

|                   |                     |                          |
|-------------------|---------------------|--------------------------|
| Site Code:        | Site Name:          | Date: ____ / ____ / ____ |
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (cm):    |
| Transect F        |                     |                          |

| TRANSECT SUBSTRATES |                   |            |                |      | Cobble Embeddedness (%) |
|---------------------|-------------------|------------|----------------|------|-------------------------|
| Position            | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Left Bank           |                   |            |                | P A  |                         |
| Left Center         |                   |            |                | P A  |                         |
| Center              |                   |            |                | P A  |                         |
| Right Center        |                   |            |                | P A  |                         |
| Right Bank          |                   |            |                | P A  |                         |

| BANK STABILITY (score zone 5m up and 5m downstream of transect between bankfull - wetted width) |        |            |        |
|---|--------|------------|--------|
| Left Bank   | eroded | vulnerable | stable |
| Right Bank  | eroded | vulnerable | stable |

| HUMAN INFLUENCE<br>(circle only the closest to wetted channel) | 0 = Not Present    B = On Bank    C = Between Bank and 10 m from Channel<br>P = >10 m + <50 m from Channel    Channel (record Yes or No) |   |   |   |         |   |            |   |   |   |
|--|--|---|---|---|---------|---|------------|---|---|---|
|  | Left Bank  |   |   |   | Channel |   | Right Bank |   |   |   |
| Walls/ Rip-rap/ Dams   | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Buildings  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Pavement/ Cleared Lot  | P  | C | B | 0 |         |   | 0          | B | C | P |
| Road/ Railroad   | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Pipes (Inlet/ Outlet)  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Landfill/ Trash  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Park/ Lawn   | P  | C | B | 0 |         |   | 0          | B | C | P |
| Row Crops  | P  | C | B | 0 |         |   | 0          | B | C | P |
| Pasture/ Range   | P  | C | B | 0 |         |   | 0          | B | C | P |
| Logging Operations   | P  | C | B | 0 |         |   | 0          | B | C | P |
| Mining Activity  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Vegetation Management  | P  | C | B | 0 |         |   | 0          | B | C | P |
| Bridges/ Abutments   | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Orchards/ Vineyards  | P  | C | B | 0 |         |   | 0          | B | C | P |

|   |  |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
|---|--|--|--|--|-------------------|-------------------|--|--|--|-------------------|-------------------|--|--|--|--|
| RIPARIAN<br>VEGETATION<br>(facing downstream) | 0 = Absent (0%)      3 = Heavy (40-75%)<br>1 = Sparse (<10%)      4 = Very Heavy>75%)<br>2 = Moderate (10-40%) <b>circle one</b> |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
|   | Vegetation Class   |  |  |  |                   | Left Bank         |  |  |  |                   | Right Bank        |  |  |  |  |
|   | Upper Canopy (>5 m high)   |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
|   | Trees and saplings<br>>5 m high  |  |  |  |                   | 0   1   2   3   4 |  |  |  |                   | 0   1   2   3   4 |  |  |  |  |
| Lower Canopy (0.5 m-5 m high)                 |  |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
| All vegetation<br>0.5 m to 5 m                |  |  |  |  | 0   1   2   3   4 |                   |  |  |  | 0   1   2   3   4 |                   |  |  |  |  |
| Ground Cover (<0.5 m high)                    |  |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
| Woody shrubs and saplings<br><0.5 m           |  |  |  |  | 0   1   2   3   4 |                   |  |  |  | 0   1   2   3   4 |                   |  |  |  |  |
| Herbs/ grasses                                |  |  |  |  | 0   1   2   3   4 |                   |  |  |  | 0   1   2   3   4 |                   |  |  |  |  |
| Barren, bare soil/ duff                       |  |  |  |  | 0   1   2   3   4 |                   |  |  |  | 0   1   2   3   4 |                   |  |  |  |  |

| INSTREAM<br>HABITAT<br>COMPLEXITY           | 0 = Absent (0%)<br>1 = Sparse (<10%)<br>2 = Moderate (10-40%)<br>3 = Heavy (40-75%)<br>4 = Very Heavy (>75%) |   |   |   |   |
|---|--|---|---|---|---|
| Filamentous Algae                           | 0  | 1 | 2 | 3 | 4 |
| Aquatic Macrophytes/<br>Emergent Vegetation | 0  | 1 | 2 | 3 | 4 |
| Boulders                                    | 0  | 1 | 2 | 3 | 4 |
| Woody Debris >0.3 m                         | 0  | 1 | 2 | 3 | 4 |
| Woody Debris <0.3 m                         | 0  | 1 | 2 | 3 | 4 |
| Undercut Banks                              | 0  | 1 | 2 | 3 | 4 |
| Overhang. Vegetation                        | 0  | 1 | 2 | 3 | 4 |
| Live Tree Roots                             | 0  | 1 | 2 | 3 | 4 |
| Artificial Structures                       | 0  | 1 | 2 | 3 | 4 |

| DENSIOMETER READINGS (0-17)<br>count covered dots |  |
|---|--|
| Center Left                                       |  |
| Center Upstream                                   |  |
| Center Downstream                                 |  |
| Center Right                                      |  |
| Left Bank (optional)                              |  |
| Right Bank (optional)                             |  |

|                    |                   |
|--------------------|-------------------|
| Inter-transect: FG | Wetted Width (m): |
|--------------------|-------------------|

| FLOW HABITATS<br>(% between transects, total=100%) |   | INTER-TRANSECT SUBSTRATES<br>(measure in mm or use size classes)   |                   |            |                |      | Cobble Embeddedness (%) | TAKE PHOTOGRAPHS<br>(check box if taken and record photo code)  |
|--|---|--|-------------------|------------|----------------|------|-------------------------|---|
| Channel Type                                       | % | Position   | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |   |
| Cascade/ Falls                                     |   | Left Bank  |                   |            |                | P A  |                         | <div style="border: 1px solid black; margin-bottom: 5px; padding: 5px;">Downstream (required) <input type="checkbox"/></div> <div style="border: 1px solid black; padding: 5px;">Upstream (required) <input type="checkbox"/></div> |
| Rapid  |   | Left Center  |                   |            |                | P A  |                         |   |
| Riffle   |   | Center   |                   |            |                | P A  |                         |   |
| Run  |   | Right Center   |                   |            |                | P A  |                         |   |
| Glide  |   | Right Bank   |                   |            |                | P A  |                         |   |
| Pool   |   | <b>Note:</b> Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of size class categories listed on the supplemental page (direct measurements are preferred) |                   |            |                |      |                         |   |
| Dry  |   |  |                   |            |                |      |                         |   |



| FLOW HABITATS<br>(% between transects, total=100%) |   | INTER-TRANSECT SUBSTRATES<br>(measure in mm or use size classes)  |                   |            |               |      | Cobble Embeddedness (%) |
|--|---|---|-------------------|------------|---------------|------|-------------------------|
| Channel Type                                       | % | Position  | Dist from LB (cm) | Depth (cm) | mm/size class | CPOM |                         |
| Cascade/ Falls                                     |   | Left Bank   |                   |            |               | P A  |                         |
| Rapid  |   | Left Center   |                   |            |               | P A  |                         |
| Riffle   |   | Center  |                   |            |               | P A  |                         |
| Run  |   | Right Center  |                   |            |               | P A  |                         |
| Glide  |   | Right Bank  |                   |            |               | P A  |                         |
| Pool   |   | <b>Note:</b> Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of size class categories listed on the supplemental page ( <b>direct measurements are preferred</b> ) |                   |            |               |      |                         |
| Dry  |   |   |                   |            |               |      |                         |

|                   |                     |                          |
|-------------------|---------------------|--------------------------|
| Site Code:        | Site Name:          | Date: ____ / ____ / ____ |
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (cm):    |
| Transect H        |                     |                          |

| TRANSECT SUBSTRATES |                   |            |                |      | Cobble Embeddedness (%) |
|---------------------|-------------------|------------|----------------|------|-------------------------|
| Position            | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Left Bank           |                   |            |                | P A  |                         |
| Left Center         |                   |            |                | P A  |                         |
| Center              |                   |            |                | P A  |                         |
| Right Center        |                   |            |                | P A  |                         |
| Right Bank          |                   |            |                | P A  |                         |

| BANK STABILITY (score zone 5m up and 5m downstream of transect between bankfull - wetted width) |        |            |        |
|---|--------|------------|--------|
| Left Bank   | eroded | vulnerable | stable |
| Right Bank  | eroded | vulnerable | stable |

| HUMAN INFLUENCE<br>(circle only the closest to wetted channel) | 0 = Not Present    B = On Bank    C = Between Bank and 10 m from Channel<br>P = >10 m + <50 m from Channel    Channel (record Yes or No) |   |   |   |         |   |            |   |   |   |
|--|--|---|---|---|---------|---|------------|---|---|---|
|  | Left Bank  |   |   |   | Channel |   | Right Bank |   |   |   |
| Walls/ Rip-rap/ Dams   | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Buildings  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Pavement/ Cleared Lot  | P  | C | B | 0 |         |   | 0          | B | C | P |
| Road/ Railroad   | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Pipes (Inlet/ Outlet)  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Landfill/ Trash  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Park/ Lawn   | P  | C | B | 0 |         |   | 0          | B | C | P |
| Row Crops  | P  | C | B | 0 |         |   | 0          | B | C | P |
| Pasture/ Range   | P  | C | B | 0 |         |   | 0          | B | C | P |
| Logging Operations   | P  | C | B | 0 |         |   | 0          | B | C | P |
| Mining Activity  | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Vegetation Management  | P  | C | B | 0 |         |   | 0          | B | C | P |
| Bridges/ Abutments   | P  | C | B | 0 | Y       | N | 0          | B | C | P |
| Orchards/ Vineyards  | P  | C | B | 0 |         |   | 0          | B | C | P |

| RIPARIAN VEGETATION<br>(facing downstream) | 0 = Absent (0%)    3 = Heavy (40-75%)<br>1 = Sparse (<10%)    4 = Very Heavy (>75%)<br>2 = Moderate (10-40%)    circle one |   |   |   |   |            |   |   |   |   |
|--|--|---|---|---|---|------------|---|---|---|---|
|  | Left Bank  |   |   |   |   | Right Bank |   |   |   |   |
| Upper Canopy (>5 m high)                   |  |   |   |   |   |            |   |   |   |   |
| Trees and saplings >5 m high               | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Lower Canopy (0.5 m-5 m high)              |  |   |   |   |   |            |   |   |   |   |
| All vegetation 0.5 m to 5 m                | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Ground Cover (<0.5 m high)                 |  |   |   |   |   |            |   |   |   |   |
| Woody shrubs and saplings <0.5 m           | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Herbs/ grasses                             | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Barren, bare soil/ duff                    | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |

| INSTREAM<br>HABITAT<br>COMPLEXITY | 0 = Absent (0%)<br>1 = Sparse (<10%)<br>2 = Moderate (10-40%)<br>3 = Heavy (40-75%)<br>4 = Very Heavy (>75%) |   |   |   |   |   |
|-----------------------------------|--|---|---|---|---|---|
|                                   | Filamentous Algae  | 0 | 1 | 2 | 3 | 4 |
|                                   | Aquatic Macrophytes/<br>Emergent Vegetation  | 0 | 1 | 2 | 3 | 4 |
|                                   | Boulders   | 0 | 1 | 2 | 3 | 4 |
|                                   | Woody Debris >0.3 m  | 0 | 1 | 2 | 3 | 4 |
| Woody Debris <0.3 m               | 0  | 1 | 2 | 3 | 4 |   |
| Undercut Banks                    | 0  | 1 | 2 | 3 | 4 |   |
| Overhang. Vegetation              | 0  | 1 | 2 | 3 | 4 |   |
| Live Tree Roots                   | 0  | 1 | 2 | 3 | 4 |   |
| Artificial Structures             | 0  | 1 | 2 | 3 | 4 |   |

| DENSIOMETER READINGS (0-17)<br>count covered dots |  |
|---|--|
| Center Left                                       |  |
| Center Upstream                                   |  |
| Center Downstream                                 |  |
| Center Right                                      |  |
| Left Bank (optional)                              |  |
| Right Bank (optional)                             |  |

|                    |                   |
|--------------------|-------------------|
| Inter-transect: HI | Wetted Width (m): |
|--------------------|-------------------|

| FLOW HABITATS<br>(% between transects, total=100%) |   | INTER-TRANSECT SUBSTRATES<br>(measure in mm or use size classes)  |                   |            |                |      | Cobble Embeddedness (%) |
|--|---|---|-------------------|------------|----------------|------|-------------------------|
| Channel Type                                       | % | Position  | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Cascade/ Falls                                     |   | Left Bank   |                   |            |                | P A  |                         |
| Rapid  |   | Left Center   |                   |            |                | P A  |                         |
| Riffle   |   | Center  |                   |            |                | P A  |                         |
| Run  |   | Right Center  |                   |            |                | P A  |                         |
| Glide  |   | Right Bank  |                   |            |                | P A  |                         |
| Pool   |   | <b>Note:</b> Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of size class categories listed on the supplemental page ( <b>direct measurements are preferred</b> ) |                   |            |                |      |                         |
| Dry  |   |   |                   |            |                |      |                         |

|                   |                     |                          |
|-------------------|---------------------|--------------------------|
| Site Code:        | Site Name:          | Date: ____ / ____ / ____ |
| Wetted Width (m): | Bankfull Width (m): | Transect I               |

| TRANSECT SUBSTRATES |                   |            |                |      | Cobble Embeddedness (%) |
|---------------------|-------------------|------------|----------------|------|-------------------------|
| Position            | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Left Bank           |                   |            |                | P A  |                         |
| Left Center         |                   |            |                | P A  |                         |
| Center              |                   |            |                | P A  |                         |
| Right Center        |                   |            |                | P A  |                         |
| Right Bank          |                   |            |                | P A  |                         |

| BANK STABILITY (score zone 5m up and 5m downstream of transect between bankfull - wetted width) |        |            |        |
|---|--------|------------|--------|
| Left Bank   | eroded | vulnerable | stable |
| Right Bank  | eroded | vulnerable | stable |

| HUMAN INFLUENCE<br>(circle only the closest to wetted channel) | 0 = Not Present    B = On Bank    C = Between Bank and 10 m from Channel<br>P = >10 m + <50 m from Channel    Channel (record Yes or No) |   |   |   |         |   |            |   |   |   |  |  |
|--|--|---|---|---|---------|---|------------|---|---|---|--|--|
|  | Left Bank  |   |   |   | Channel |   | Right Bank |   |   |   |  |  |
| Walls/ Rip-rap/ Dams   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Buildings  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Pavement/ Cleared Lot  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Road/ Railroad   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Pipes (Inlet/ Outlet)  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Landfill/ Trash  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Park/ Lawn   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Row Crops  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Pasture/ Range   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Logging Operations   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Mining Activity  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Vegetation Management  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Bridges/ Abutments   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Orchards/ Vineyards  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |

| RIPARIAN VEGETATION<br>(facing downstream) | 0 = Absent (0%)    3 = Heavy (40-75%)<br>1 = Sparse (<10%)    4 = Very Heavy (>75%)<br>2 = Moderate (10-40%)    circle one |            |
|--|--|------------|
|  | Left Bank  | Right Bank |
| <b>Upper Canopy (&gt;5 m high)</b>         |  |            |
| Trees and saplings >5 m high               | 0 1 2 3 4  | 0 1 2 3 4  |
| <b>Lower Canopy (0.5 m-5 m high)</b>       |  |            |
| All vegetation 0.5 m to 5 m                | 0 1 2 3 4  | 0 1 2 3 4  |
| <b>Ground Cover (&lt;0.5 m high)</b>       |  |            |
| Woody shrubs and saplings <0.5 m           | 0 1 2 3 4  | 0 1 2 3 4  |
| Herbs/ grasses                             | 0 1 2 3 4  | 0 1 2 3 4  |
| Barren, bare soil/ duff                    | 0 1 2 3 4  | 0 1 2 3 4  |

| INSTREAM HABITAT COMPLEXITY                 | 0 = Absent (0%)<br>1 = Sparse (<10%)<br>2 = Moderate (10-40%)<br>3 = Heavy (40-75%)<br>4 = Very Heavy (>75%) |   |   |   |   |
|---|--|---|---|---|---|
| Filamentous Algae                           | 0  | 1 | 2 | 3 | 4 |
| Aquatic Macrophytes/<br>Emergent Vegetation | 0  | 1 | 2 | 3 | 4 |
| Boulders                                    | 0  | 1 | 2 | 3 | 4 |
| Woody Debris >0.3 m                         | 0  | 1 | 2 | 3 | 4 |
| Woody Debris <0.3 m                         | 0  | 1 | 2 | 3 | 4 |
| Undercut Banks                              | 0  | 1 | 2 | 3 | 4 |
| Overhang. Vegetation                        | 0  | 1 | 2 | 3 | 4 |
| Live Tree Roots                             | 0  | 1 | 2 | 3 | 4 |
| Artificial Structures                       | 0  | 1 | 2 | 3 | 4 |

| DENSIOMETER READINGS (0-17)<br>count covered dots |  |
|---|--|
| Center Left                                       |  |
| Center Upstream                                   |  |
| Center Downstream                                 |  |
| Center Right                                      |  |
| Left Bank (optional)                              |  |
| Right Bank (optional)                             |  |

|                    |                   |
|--------------------|-------------------|
| Inter-transect: IJ | Wetted Width (m): |
|--------------------|-------------------|

| FLOW HABITATS<br>(% between transects, total=100%) |   | INTER-TRANSECT SUBSTRATES<br>(measure in mm or use size classes)  |                   |            |                |      | Cobble Embeddedness (%) |
|--|---|---|-------------------|------------|----------------|------|-------------------------|
| Channel Type                                       | % | Position  | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Cascade/ Falls                                     |   | Left Bank   |                   |            |                | P A  |                         |
| Rapid  |   | Left Center   |                   |            |                | P A  |                         |
| Riffle   |   | Center  |                   |            |                | P A  |                         |
| Run  |   | Right Center  |                   |            |                | P A  |                         |
| Glide  |   | Right Bank  |                   |            |                | P A  |                         |
| Pool   |   | <b>Note:</b> Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of size class categories listed on the supplemental page ( <b>direct measurements are preferred</b> ) |                   |            |                |      |                         |
| Dry  |   |   |                   |            |                |      |                         |

|                   |                     |                          |
|-------------------|---------------------|--------------------------|
| Site Code:        | Site Name:          | Date: ____ / ____ / ____ |
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (cm):    |

**Transect J**

| TRANSECT SUBSTRATES |                   |            |                |      | Cobble Embeddedness (%) |
|---------------------|-------------------|------------|----------------|------|-------------------------|
| Position            | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Left Bank           |                   |            |                | P A  |                         |
| Left Center         |                   |            |                | P A  |                         |
| Center              |                   |            |                | P A  |                         |
| Right Center        |                   |            |                | P A  |                         |
| Right Bank          |                   |            |                | P A  |                         |

| BANK STABILITY (score zone 5m up and 5m downstream of transect between bankfull - wetted width) |        |            |        |
|---|--------|------------|--------|
| Left Bank   | eroded | vulnerable | stable |
| Right Bank  | eroded | vulnerable | stable |

| HUMAN INFLUENCE<br>(circle only the closest to wetted channel) | 0 = Not Present    B = On Bank    C = Between Bank and 10 m from Channel<br>P = >10 m + <50 m from Channel    Channel (record Yes or No) |   |   |   |         |   |            |   |   |   |  |  |
|--|--|---|---|---|---------|---|------------|---|---|---|--|--|
|  | Left Bank  |   |   |   | Channel |   | Right Bank |   |   |   |  |  |
| Walls/ Rip-rap/ Dams   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Buildings  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Pavement/ Cleared Lot  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Road/ Railroad   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Pipes (Inlet/ Outlet)  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Landfill/ Trash  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Park/ Lawn   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Row Crops  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Pasture/ Range   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Logging Operations   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Mining Activity  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Vegetation Management  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Bridges/ Abutments   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Orchards/ Vineyards  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |

|   |  |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
|---|--|--|--|--|-------------------|-------------------|--|--|--|-------------------|-------------------|--|--|--|--|
| RIPARIAN<br>VEGETATION<br>(facing downstream) | 0 = Absent (0%)      3 = Heavy (40-75%)<br>1 = Sparse (<10%)      4 = Very Heavy>75%)<br>2 = Moderate (10-40%) <b>circle one</b> |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
|   | Vegetation Class   |  |  |  |                   | Left Bank         |  |  |  |                   | Right Bank        |  |  |  |  |
|   | Upper Canopy (>5 m high)   |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
|   | Trees and saplings<br>>5 m high  |  |  |  |                   | 0   1   2   3   4 |  |  |  |                   | 0   1   2   3   4 |  |  |  |  |
| Lower Canopy (0.5 m-5 m high)                 |  |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
| All vegetation<br>0.5 m to 5 m                |  |  |  |  | 0   1   2   3   4 |                   |  |  |  | 0   1   2   3   4 |                   |  |  |  |  |
| Ground Cover (<0.5 m high)                    |  |  |  |  |                   |                   |  |  |  |                   |                   |  |  |  |  |
| Woody shrubs and saplings<br><0.5 m           |  |  |  |  | 0   1   2   3   4 |                   |  |  |  | 0   1   2   3   4 |                   |  |  |  |  |
| Herbs/ grasses                                |  |  |  |  | 0   1   2   3   4 |                   |  |  |  | 0   1   2   3   4 |                   |  |  |  |  |
| Barren, bare soil/ duff                       |  |  |  |  | 0   1   2   3   4 |                   |  |  |  | 0   1   2   3   4 |                   |  |  |  |  |

| INSTREAM<br>HABITAT<br>COMPLEXITY           | 0 = Absent (0%)<br>1 = Sparse (<10%)<br>2 = Moderate (10-40%)<br>3 = Heavy (40-75%)<br>4 = Very Heavy (>75%) |   |   |   |   |
|---|--|---|---|---|---|
| Filamentous Algae                           | 0  | 1 | 2 | 3 | 4 |
| Aquatic Macrophytes/<br>Emergent Vegetation | 0  | 1 | 2 | 3 | 4 |
| Boulders                                    | 0  | 1 | 2 | 3 | 4 |
| Woody Debris >0.3 m                         | 0  | 1 | 2 | 3 | 4 |
| Woody Debris <0.3 m                         | 0  | 1 | 2 | 3 | 4 |
| Undercut Banks                              | 0  | 1 | 2 | 3 | 4 |
| Overhang. Vegetation                        | 0  | 1 | 2 | 3 | 4 |
| Live Tree Roots                             | 0  | 1 | 2 | 3 | 4 |
| Artificial Structures                       | 0  | 1 | 2 | 3 | 4 |

| DENSIOMETER READINGS (0-17)<br>count covered dots |  |
|---|--|
| Center Left                                       |  |
| Center Upstream                                   |  |
| Center Downstream                                 |  |
| Center Right                                      |  |
| Left Bank (optional)                              |  |
| Right Bank (optional)                             |  |

**Inter-transect: JK**

Wetted Width (m):

| FLOW HABITATS<br>(% between transects, total=100%) |   | INTER-TRANSECT SUBSTRATES<br>(measure in mm or use size classes)  |                   |            |                |      | Cobble Embeddedness (%) |
|--|---|---|-------------------|------------|----------------|------|-------------------------|
| Channel Type                                       | % | Position  | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Cascade/ Falls                                     |   | Left Bank   |                   |            |                | P A  |                         |
| Rapid  |   | Left Center   |                   |            |                | P A  |                         |
| Riffle   |   | Center  |                   |            |                | P A  |                         |
| Run  |   | Right Center  |                   |            |                | P A  |                         |
| Glide  |   | Right Bank  |                   |            |                | P A  |                         |
| Pool   |   | <b>Note:</b> Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of size class categories listed on the supplemental page ( <b>direct measurements are preferred</b> ) |                   |            |                |      |                         |
| Dry  |   |   |                   |            |                |      |                         |

|                   |                     |                          |
|-------------------|---------------------|--------------------------|
| Site Code:        | Site Name:          | Date: ____ / ____ / ____ |
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (cm):    |

**Transect K**

| TRANSECT SUBSTRATES |                   |            |                |      | Cobble Embeddedness (%) |
|---------------------|-------------------|------------|----------------|------|-------------------------|
| Position            | Dist from LB (cm) | Depth (cm) | mm/ size class | CPOM |                         |
| Left Bank           |                   |            |                | P A  |                         |
| Left Center         |                   |            |                | P A  |                         |
| Center              |                   |            |                | P A  |                         |
| Right Center        |                   |            |                | P A  |                         |
| Right Bank          |                   |            |                | P A  |                         |

| HUMAN INFLUENCE<br>(circle only the closest to wetted channel) | 0 = Not Present    B = On Bank    C = Between Bank and 10 m from Channel<br>P = >10 m + <50 m from Channel    Channel (record Yes or No) |   |   |   |         |   |            |   |   |   |  |  |
|--|--|---|---|---|---------|---|------------|---|---|---|--|--|
|  | Left Bank  |   |   |   | Channel |   | Right Bank |   |   |   |  |  |
| Walls/ Rip-rap/ Dams   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Buildings  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Pavement/ Cleared Lot  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Road/ Railroad   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Pipes (Inlet/ Outlet)  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Landfill/ Trash  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Park/ Lawn   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Row Crops  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Pasture/ Range   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Logging Operations   | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Mining Activity  | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Vegetation Management  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |
| Bridges/ Abutments   | P  | C | B | 0 | Y       | N | 0          | B | C | P |  |  |
| Orchards/ Vineyards  | P  | C | B | 0 |         |   | 0          | B | C | P |  |  |

| BANK STABILITY (score zone 5m up and 5m downstream of transect between bankfull - wetted width) |        |            |        |
|---|--------|------------|--------|
| Left Bank   | eroded | vulnerable | stable |
| Right Bank  | eroded | vulnerable | stable |

|  |  |   |   |   |   |            |   |   |   |   |
|--|--|---|---|---|---|------------|---|---|---|---|
| <div>RIPARIAN<br/>VEGETATION<br/>(facing downstream)</div> | <div>0 = Absent (0%)      3 = Heavy (40-75%)<br/>1 = Sparse (&lt;10%)    4 = Very Heavy&gt;75%)<br/>2 = Moderate (10-40%)      <b>circle one</b></div> |   |   |   |   |            |   |   |   |   |
| Vegetation Class   | Left Bank  |   |   |   |   | Right Bank |   |   |   |   |
| Upper Canopy (>5 m high)                                   |  |   |   |   |   |            |   |   |   |   |
| Trees and saplings<br>>5 m high                            | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Lower Canopy (0.5 m-5 m high)                              |  |   |   |   |   |            |   |   |   |   |
| All vegetation<br>0.5 m to 5 m                             | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Ground Cover (<0.5 m high)                                 |  |   |   |   |   |            |   |   |   |   |
| Woody shrubs and saplings<br><0.5 m                        | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Herbs/ grasses   | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |
| Barren, bare soil/ duff                                    | 0  | 1 | 2 | 3 | 4 | 0          | 1 | 2 | 3 | 4 |

| INSTREAM HABITAT COMPLEXITY              |  | 0 = Absent (0%)<br>1 = Sparse (<10%)<br>2 = Moderate (10-40%)<br>3 = Heavy (40-75%)<br>4 = Very Heavy (>75%) |   |   |   |   |  |  |  |  |  |
|--|--|--|---|---|---|---|--|--|--|--|--|
| Filamentous Algae                        |  | 0  | 1 | 2 | 3 | 4 |  |  |  |  |  |
| Aquatic Macrophytes/ Emergent Vegetation |  | 0  | 1 | 2 | 3 | 4 |  |  |  |  |  |
| Boulders                                 |  | 0  | 1 | 2 | 3 | 4 |  |  |  |  |  |
| Woody Debris >0.3 m                      |  | 0  | 1 | 2 | 3 | 4 |  |  |  |  |  |
| Woody Debris <0.3 m                      |  | 0  | 1 | 2 | 3 | 4 |  |  |  |  |  |
| Undercut Banks                           |  | 0  | 1 | 2 | 3 | 4 |  |  |  |  |  |
| Overhang. Vegetation                     |  | 0  | 1 | 2 | 3 | 4 |  |  |  |  |  |
| Live Tree Roots                          |  | 0  | 1 | 2 | 3 | 4 |  |  |  |  |  |
| Artificial Structures                    |  | 0  | 1 | 2 | 3 | 4 |  |  |  |  |  |

| DENSIOMETER READINGS (0-17)<br>count covered dots |  |
|---|--|
| Center Left                                       |  |
| Center Upstream                                   |  |
| Center Downstream                                 |  |
| Center Right                                      |  |
| Left Bank (optional)                              |  |
| Right Bank (optional)                             |  |

**No Inter-transect Measures**

|  |  |
|--|--|
|  | <div style="background-color: black; color: white; text-align: center; padding: 5px; font-weight: bold;">TAKE PHOTOGRAPHS</div> <div style="text-align: center; font-size: small;">(check box if taken and record photo code)</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">           Upstream (required) <span style="float: right;"><input type="checkbox"/></span> </div> <div style="border: 1px solid black; padding: 5px;">           Downstream (optional) <span style="float: right;"><input type="checkbox"/></span> </div> |
|--|--|

Site Code:

Date: \_\_/\_\_/\_\_\_\_

**FULL FORM****Site Map:****Field Notes/ Comments:****ADDITIONAL PHOTOGRAPHS**

| Description | Photo Code | Description | Photo Code |
|-------------|------------|-------------|------------|
|             |            |             |            |
|             |            |             |            |
|             |            |             |            |

| Flow Habitat Type | DESCRIPTION   |
|-------------------|---|
| <b>Cascades</b>   | Short, high gradient drop in stream bed elevation often accompanied by boulders and considerable turbulence   |
| <b>Falls</b>      | High gradient drop in elevation of the stream bed associated with an abrupt change in the bedrock   |
| <b>Rapids</b>     | Sections of stream with swiftly flowing water and considerable surface turbulence. Rapids tend to have larger substrate sizes than riffles  |
| <b>Riffles</b>    | Shallow sections where the water flows over coarse stream bed particles that create mild to moderate surface turbulence; (< 0.5 m deep, > 0.3 m/s).   |
| <b>Runs</b>       | Long, relatively straight, low-gradient sections without flow obstructions. The stream bed is typically even and the water flows faster than it does in a pool; (> 0.5 m deep, > 0.3 m/s). A <b>step-run</b> is a series of runs separated by short riffles or flow obstructions that cause discontinuous breaks in slope |
| <b>Glides</b>     | A section of stream with little or no turbulence, but faster velocity than pools; (< 0.5 m deep, < 0.3 m/s)   |
| <b>Pools</b>      | A reach of stream that is characterized by deep, low-velocity water and a smooth surface; (> 0.5 m deep, < 0.3 m/s)   |

| Size Class Code | Size Class Range | Size Class Description       | Common Size Reference     |
|-----------------|------------------|------------------------------|---------------------------|
| <b>RS</b>       | > 4 m            | bedrock, smooth              | larger than a car         |
| <b>RR</b>       | > 4 m            | bedrock, rough               | larger than a car         |
| <b>XB</b>       | 1 - 4 m          | boulder, large               | meter stick to car        |
| <b>SB</b>       | 25 cm - 1.0 m    | boulder, small               | basketball to meter stick |
| <b>CB</b>       | 64 - 250 mm      | cobble                       | tennis ball to basketball |
| <b>GC</b>       | 16 - 64 mm       | gravel, coarse               | marble to tennis ball     |
| <b>GF</b>       | 2 - 16 mm        | gravel, fine                 | ladybug to marble         |
| <b>SA</b>       | 0.06 - 2 mm      | sand                         | gritty to ladybug         |
| <b>FN</b>       | < 0.06 mm        | finer                        | not gritty                |
| <b>HP</b>       | < 0.06 mm        | hardpan (consolidated fines) |                           |
| <b>WD</b>       | NA               | wood                         |                           |
| <b>RC</b>       | NA               | concrete/ asphalt            |                           |
| <b>OT</b>       | NA               | other                        |                           |

**BANK STABILITY**

Although this measure of the degree of erosive potential is subjective, it can provide clues to the erosive potential of the banks within the reach. Assign the category whose description best fits the conditions in the area between the wetted channel and bankfull channel (see figure below)

|                   |  |
|-------------------|--|
| <b>Eroded</b>     | Banks show obvious signs of erosion from the current or previous water year; banks are usually bare or nearly bare   |
| <b>Vulnerable</b> | Banks have some vegetative protection (usually annual growth), but not enough to prevent erosion during flooding   |
| <b>Stable</b>     | Bank vegetation has well-developed roots that protect banks from erosion; alternately, bedrock or artificial structures (e.g., concrete/ rip-rap) prevent bank erosion |

**CPOM/ COBBLE EMBEDDEDNESS**

**CPOM:** Record presence (P) or absence (A) of coarse particulate organic matter (>1.0 mm particles) within 1 cm of each substrate particle

**Cobble Embeddedness:** Visually estimate % embedded by fine particles (record to nearest 5%)

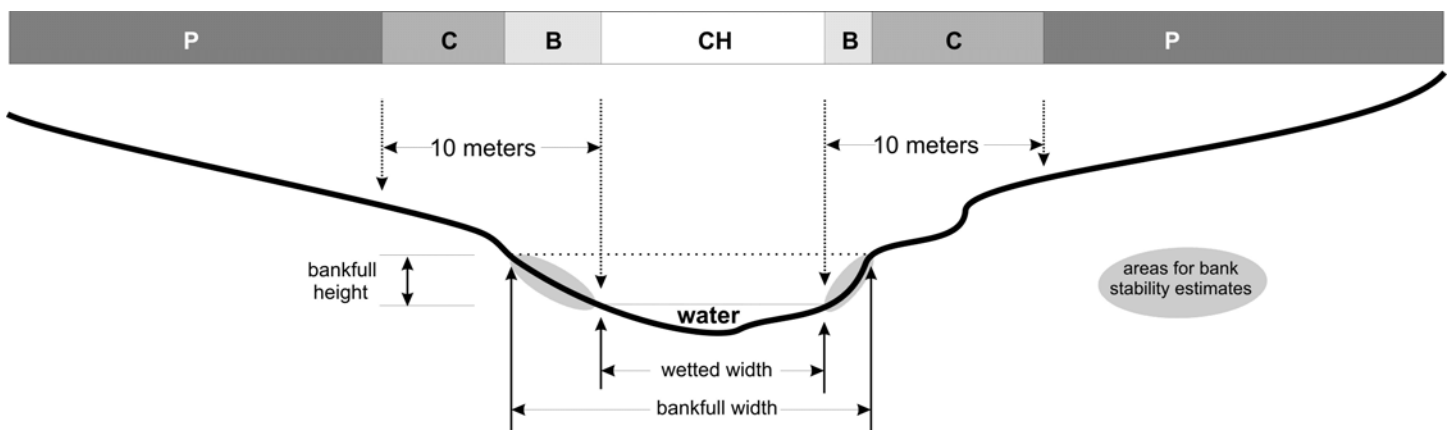
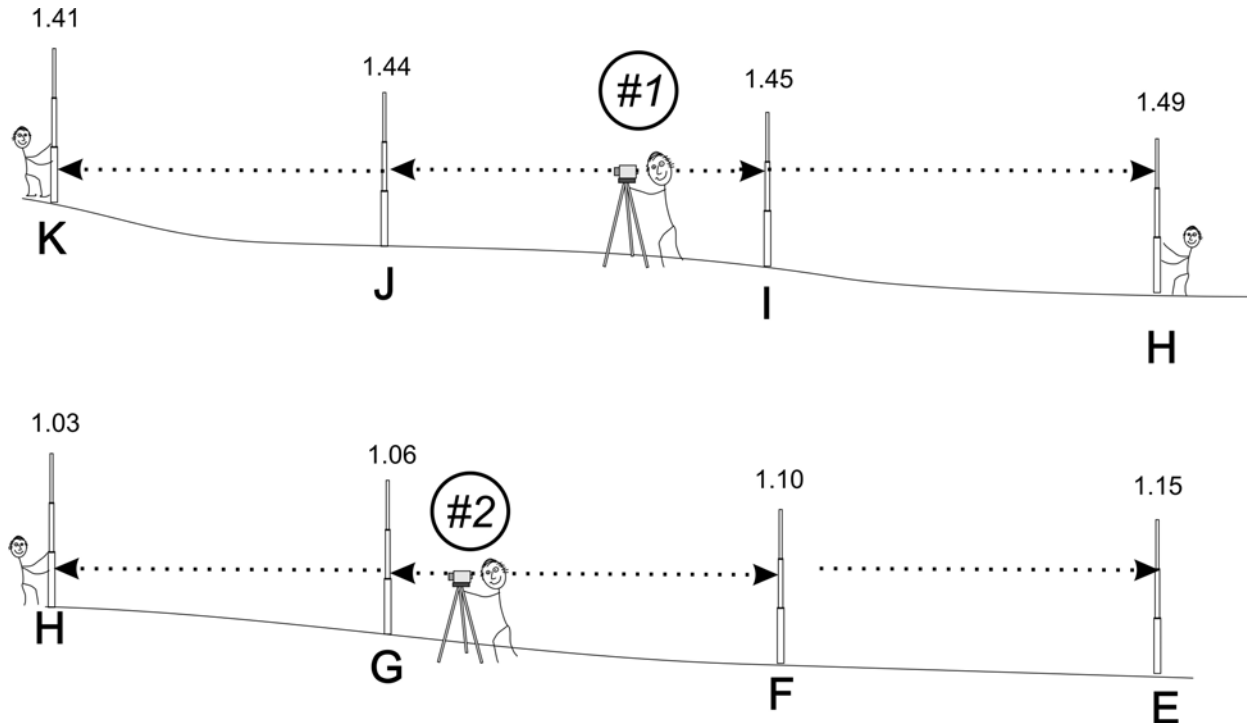


Figure 1. Cross-sectional diagram of stream transect indicating regions for assessing human influence measures:

- The measurement zone extends 5 meters upstream and 5 meters downstream of each transect
- Record one category for each bank and for the wetted channel (3 values possible)
- In reaches with wide banks, region "C" may be entirely overlapped by region "B"; in these cases, circle "B"
- Region "P" extends from 10 meters to the distance that can be seen from the channel, but not greater than 50 m

| SLOPE and BEARING FORM |  |      |   |                          |                      | EXAMPLE  |                            | AUTOLEVEL<br>CLINOMETER<br>HANDLEVEL |   | X                        |                      |                                      |
|------------------------|--|------|---|--------------------------|----------------------|--|----------------------------|--------------------------------------|---|--------------------------|----------------------|--------------------------------------|
| Starting<br>Transect   | MAIN SEGMENT<br>(record percent of inter-transect distance in each segment<br>if supplemental segments are used) |      |   |                          |                      | SUPPLEMENTAL SEGMENT<br>(record percent of inter-transect distance in each segment<br>if supplemental segments are used) |                            |                                      |   |                          |                      |                                      |
|                        | Stadia rod<br>measurements   |      | Slope (%) or<br>Elevation<br>Difference<br>cm <input type="checkbox"/> % <input type="checkbox"/> | Segment<br>Length<br>(m) | Bearing<br>(0°-359°) | Percent<br>of Total<br>Length<br>(%)   | Stadia rod<br>measurements |                                      | Slope or<br>Elevation<br>Difference<br>cm <input type="checkbox"/> % <input type="checkbox"/> | Segment<br>Length<br>(m) | Bearing<br>(0°-359°) | Percent<br>of Total<br>Length<br>(%) |
|                        |  |      |   |                          |                      |  |                            |                                      |   |                          |                      |                                      |
| K                      | 1.41   |      |   |                          |                      |  |                            |                                      |   |                          |                      |                                      |
| J                      | 1.44   |      | 3   | 15                       | 140                  | 100  |                            |                                      |   |                          |                      |                                      |
| I                      | 1.45   |      | 1   | 15                       | 145                  | 100  |                            |                                      |   |                          |                      |                                      |
| H                      | 1.49   | 1.03 | 4   | 15                       | 150                  | 100  |                            |                                      |   |                          |                      |                                      |
| G                      |  | 1.06 | 3   | 15                       | 143                  | 100  |                            |                                      |   |                          |                      |                                      |
| F                      |  | 1.10 | 4   | 15                       | 187                  | 100  |                            |                                      |   |                          |                      |                                      |
| E                      |  | 1.15 | 5   | 15                       | 195                  | 100  |                            |                                      |   |                          |                      |                                      |



1. Level the autolevel at Position #1
2. Place base of stadia rod at water level every time
3. Sight to stadia rod at Transect K, then Transect J
4. Rotate scope and sight to Transects I and H.
5. Move level to Position #2 and re-level

6. Re-sight to stadia rod at Transect H, then Transect G
7. Rotate scope and sight to Transects F and E

*Note: sites will vary in the number of separate level positions needed to survey the reach*